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Arlin B. Super and Ed Holroyd

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The investigators had previously developed the Snow Accumulation Algorithm (SAA) for calculating snowfall accumulations (both liquid equivalent and depth) using the post-processing and close-circuit Level II format for the Next Generation Radars (NEXRAD). The SAA will not be implemented nationwide by the National Weather Service (NWS) until NEXRAD computers are upgraded in a couple of years. Meanwhile, there is a Reclamation and NWS River Forecast Center need for SAA products as input for flood forecasts. The research seeks to use the NEXRAD Information Dissemination System (NIDS) Level III Base Reflectivity data format, available from WSI Corporation, but at only 4 or 5 dBZ reflectivity resolution rather than the 0.5 dBZ of the Level II data. Hourly updates for each radar or the combined mosaic need to be available to provide timely data on regional snowfalls.

- To ingest in real time the NIDS format for five NEXRAD radars on the northern plains;
- to simultaneously run the SAA on all five radars;
- to apply an appropriate range correction;
- to mosaic the results onto the 4 km Hydrologic Rainfall Analysis Project (HRAP) grid;
- to deliver the results to the National Oceanic and Atmospheric Administration's (NOAA) National Operational Hydrologic Remote Sensing Center (NOHRSC);
- to compare the results with surface precipitation;
- to minimize the blemishes;
- to contribute to the goals of the Global Energy and Water Cycle Experiment (GEWEX) Continental Scale International Project (GCIP), part of the World Climate Research Program of NOAA.

A real-time Internet site was produced that gives hourly updates to snow accumulations, both liquid equivalents and depth, for five radars in the northern plains, singly or combined in a mosaic. When compared to actual snowfalls, the results indicate that the calibration coefficient and exponent are appropriate and that the derived range correction works well to 230 km from the radars. Some radars had calibration problems. Cooperative precipitation measurements at the surface were adversely affected by wind exposure. Virga and bright band contaminations were examined and successful algorithms were developed to minimize their effects. However, those improvements have not yet been adequately tested for incorporation into the operational version of the SAA.

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NEXRAD Operational Support Facility, NOAA-GCIP, NOAA-NOHRSC, NOAA Weather Forecast offices in Minnesota, North Dakota, and South Dakota.

An operational Internet site with hourly updates giving snowfall (precipitation and depth) accumulations for five radars in the northern plains: www.usbr.gov/rsmg/ Click on NEXRAD Snow Algorithm Products (November through April only). "Snowfall Algorithms for Radar Estimation of Precipitation" by Paul Smith and Arlin Super, presented at 29th International Conference of Radar Meteorology, in Montreal, Quebec, Canada, mid-July 1999. Oral presentations on the SAA at Quantitative Precipitation Estimation (QPE) workshops in Boulder, Colorado (February 1999) and Reno, Nevada (June 1999).